

# Urban/Suburban Interpretation Activities

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NCSS National Conference  
June 5, 2007  
Madison, Wisconsin

# Urban/Suburban Soils Long Range Plan

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- Assistance to states
  - Travel requested through NSSC annual process in August
  - Additional consultations by phone, email, net meeting
- Technology transfer
  - Focus on interdisciplinary projects (such as ecosystems)
  - Broaden network beyond NRCS and traditional partners
- Marketing to target groups including exhibits at meetings
  - Planners (Aug 2006-Apr 2008)
  - Landscape Architects (Jan 2007-June 2008)  
(Sustainable Sites Initiative to rollout in summer 2008)
  - Realtors (Apr 2007-Nov 2007)

# Assistance to States - Runoff (Fargo, ND)

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## How We Measure and Monitor Runoff

Storm Water Management (TR-55)

Urban Sedimentation and Water Quality

Erosion And Sediment Control (RUSLE2 urban default layers)

## Underlying Soil Properties and Qualities

Soil Sealing at surface, surface ponding

Compaction below surface, bulk density, clay content

**TR-55 runoff curve numbers by housing density and vigor of cover.**  
<http://www.wcc.nrcs.usda.gov/water/quality/common/tr55/tr55.html>

Cover Type	Increasing runoff (RCN) by decreasing infiltration (HSG)				soil condition
	A	B	C	D	
Paved Driveway	98	98	98	98	impervious
Commercial District	89	92	94	95	85% impervious
Newly graded area	77	86	91	94	no vegetation
Housing lot <1/8 acre	77	85	90	92	65% impervious
Housing lot 1/4 acre	61	75	83	87	38% impervious
Housing lot 1/2 acre	54	70	80	85	25% impervious
Housing lot 2 acres	46	65	77	82	12% impervious
"Poor" open lawn	68	79	86	89	<50% grassed
"Good" open lawn	39	61	74	80	>75% grassed

*Table 2.2a in TR-55 Urban Hydrology for Small Watersheds.*  
*RCN is runoff curve number (30-98) where 30 has the least runoff,*  
*HSG is hydrologic soil group (A-D where A has rapid infiltration)*

# Soil Ch

- ☐ Soil Survey Areas
- ☒ Soil Map Units
- ☒ Soil Ratings
  - $\leq 25$
  - $> 25 \text{ AND } \leq 27.4$
  - $> 27.4 \text{ AND } \leq 48$
  - $> 48 \text{ AND } \leq 51$
  - $> 51 \text{ AND } \leq 52.3$
  - Not rated or not available

## Soil Nh

- ☐ E. Special Line Features
- ☐ F. Special Line Features
- ☒ Political Features
  - ☐ County
  - ☐ Township
  - ☐ Range

Scale: Density, one-tenth inch =

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Linear Extension:

Organic Matter

## Percent Clay

[View Description](#)

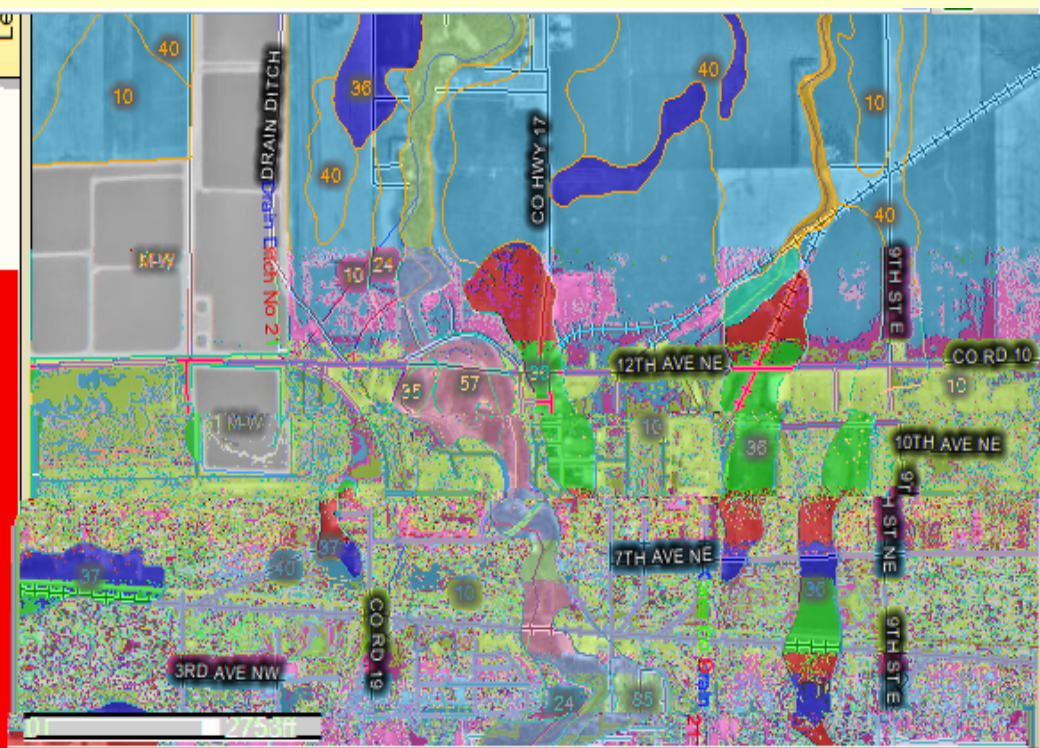
[View Rating](#)

## View Options

Map ☒

Table ☒

Description of Rating ☒



## Tables — Percent Clay — Summary By Map Unit

### Summary by Map Unit — Cass County Area, North Dakota

Map Unit	Map Unit Name	Rating (percent)	Acres in AOI	Percent of Area
10	Fairdale silt loam, 1 to 3 percent slopes	48.0	7,510.3	40.0%
24	Cashel silty clay	50.0	183.1	2.4%
25	Cashel silty clay, channeled	50.0	3.3	0.0%
35	Fairdale silt loam, 1 to 3 percent slopes	48.0	42.1	0.6%
36	Fargo silty clay	52.3	549.6	7.3%

# Technology Transfer for Urban Residences and Small Businesses

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To reduce runoff with a **rain garden**

- decrease the impervious area
- improve the plant vigor on the site.

On a larger scale these might be called

- **bio- swales**
- **retention ponds**
- **riparian areas**

(Plant selection and length of ponding are factors.)

# Water Management

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***How can I find a suitable location for a small urban pond? I want to include vegetation that would attract wildlife.***

- *Soil suitability and limitation ratings*

- Water Management
- Embankments, Dikes, and Levees
- Excavated Ponds (Aquifer-fed)

- *Soil property and quality ratings*

- Percent Clay
- Drainage Class
- Hydric Rating
- Flooding Frequency Class
- Ponding Frequency Class



The screenshot shows the ArcView 3.2a software interface. The main map window displays a map of Fargo, North Dakota, with various overlays. The legend on the left indicates the following layers:

- Area Of Interest (AOI)
- Soils
- Soil Survey Areas
- Soil Rating
- Very limited
- Somewhat limited
- Not rated or not available
- Special Point Features
- Special Line Features
- Political Features
- Postal Code
- Political Unit

The map shows a grid of soil survey areas, with some areas highlighted in red and others in yellow. The map also shows political features such as streets (e.g., 12TH AVE NE, 10TH AVE NE, 9TH ST E, 7TH AVE NE, 3RD AVE NW, CO RD 10, CO HWY 17, CO RD 12, CO RD 13, CO RD 14, CO RD 15, CO RD 16, CO RD 17, CO RD 18, CO RD 19, CO RD 20, CO RD 21, CO RD 22, CO RD 23, CO RD 24, CO RD 25, CO RD 26, CO RD 27, CO RD 28, CO RD 29, CO RD 30, CO RD 31, CO RD 32, CO RD 33, CO RD 34, CO RD 35, CO RD 36, CO RD 37, CO RD 38, CO RD 39, CO RD 40, CO RD 41, CO RD 42, CO RD 43, CO RD 44, CO RD 45, CO RD 46, CO RD 47, CO RD 48, CO RD 49, CO RD 50, CO RD 51, CO RD 52, CO RD 53, CO RD 54, CO RD 55, CO RD 56, CO RD 57, CO RD 58, CO RD 59, CO RD 60, CO RD 61, CO RD 62, CO RD 63, CO RD 64, CO RD 65, CO RD 66, CO RD 67, CO RD 68, CO RD 69, CO RD 70, CO RD 71, CO RD 72, CO RD 73, CO RD 74, CO RD 75, CO RD 76, CO RD 77, CO RD 78, CO RD 79, CO RD 80, CO RD 81, CO RD 82, CO RD 83, CO RD 84, CO RD 85, CO RD 86, CO RD 87, CO RD 88, CO RD 89, CO RD 90, CO RD 91, CO RD 92, CO RD 93, CO RD 94, CO RD 95, CO RD 96, CO RD 97, CO RD 98, CO RD 99, CO RD 100) and political units (e.g., 10TH AVE NE, 12TH AVE NE, 14TH AVE NE, 16TH AVE NE, 18TH AVE NE, 20TH AVE NE, 22ND AVE NE, 24TH AVE NE, 26TH AVE NE, 28TH AVE NE, 30TH AVE NE, 32ND AVE NE, 34TH AVE NE, 36TH AVE NE, 38TH AVE NE, 40TH AVE NE, 42ND AVE NE, 44TH AVE NE, 46TH AVE NE, 48TH AVE NE, 50TH AVE NE, 52ND AVE NE, 54TH AVE NE, 56TH AVE NE, 58TH AVE NE, 60TH AVE NE, 62ND AVE NE, 64TH AVE NE, 66TH AVE NE, 68TH AVE NE, 70TH AVE NE, 72ND AVE NE, 74TH AVE NE, 76TH AVE NE, 78TH AVE NE, 80TH AVE NE, 82ND AVE NE, 84TH AVE NE, 86TH AVE NE, 88TH AVE NE, 90TH AVE NE, 92ND AVE NE, 94TH AVE NE, 96TH AVE NE, 98TH AVE NE, 100TH AVE NE).

The map also shows a rating overlay, with areas colored red and yellow. The rating is based on the soil type and the presence of certain features. The map also shows a scale bar (0 to 2725 ft) and a north arrow.

The interface includes a menu bar (File, Edit, View, Layout, Window, Help), toolbars (Standard, Map, Navigation, Legend, Scale, Print, etc.), a legend, and a table of data.

The table of data is titled "Tables - Embankments, Dikes, and Levees - Summary By Map Unit" and "Summary by Map Unit - Cass County Area, North Dakota". It contains the following data:

Map Unit Symbol	Map Unit Name	Rating	Component Name (Percent)	Rating Reason (Rating Value)
10	Fargo-Ryan silty clays	Very limited	Fargo (47%)	Depth to saturation zone (1)

The interface also includes a "Rating Options" dialog box with the following options:

- ☒ Rating
- ☐ Detailed Description

The "Advanced Options" dialog box is also visible, with the following options:

- ☐ View Description
- ☐ View Rating

The status bar at the bottom shows the date "Monday, February 26, 2007" and the text "Done".



# American Planning Association

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**Over 6,000 planners attended & 33% visited our 2007 exhibit**

**Provided planner-friendly color Fact Sheets on CD**

- Farmland Protection

- PLANTS database

- Soil Data Viewer

- Soil Data Mart

- Compare Web Soil Survey to Soil Data Mart

**Two computer stations** to demo online technology

**Technology Showcase** Presentation on GIS Applications of Soil Survey  
Information including Data Downloads

**Large part of soils 3-D exhibit** from World Soils Congress

**Responses:** 3 most requested services were Best Management Practices,  
Basic Soil Information, and Examples using Soil Survey in Urban Planning



# Sustainable Sites Initiative (SSI)

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LEEDS (Leadership in Energy and Environmental Design of Structures)  
Lady Bird Johnson Wildflower Center (U Texas)  
American Society of Landscape Architects

## Soils sub-committee

Collate and review Best Management Practices from any source  
Provide basic soil information for planning and maintaining BMPs  
Explain benefits of adopting BMPs

## Product timeline

June 2007 Draft (first Austin meeting)  
October 2007 Draft (possible mid-November meeting)  
June 2008 Final (probable meeting of entire SSI team)

# Upcoming Marketing Opportunities

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American Society of Landscape Architects (ASLA)

San Francisco, CA

October 5-8, 2007

Exhibit with Web Soil Survey Display

National Association of Realtors (NAR)

Las Vegas, NV (Sands Convention Center)

November 13-18, 2007

Exhibit with Web Soil Survey Display

Possible technical presentation



# Urban and Suburban Soils Field Guide

*Version 1.0*  
*September 2007*



# Urban/Suburban Soils Field Guide

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[Glossary \(acronyms, technical vocabulary\)](#)

[Appendix 1: Programs, Regulations, Technical details \(internal NRCS\)](#)

[Appendix 2: Contact list of Customers and Cooperators](#)

*\*programmed as interactive electronic file - demo on desktop*

# Urban/Suburban Soils Field Guide

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## Section 2: Technical Topics

- ❑ Compaction
- ❑ Sealed Soils
- ❑ Expansive Soils
- ❑ Storm Water Recharge, Infiltration, and Rain Gardens
- ❑ Erosion and Sediment Transport
- ❑ Soil Quality Field Tests and Cards for on-site
- ❑ Acid Sulfate Soils
  
- ❑ Urban and Community Forestry (RESERVED)
- ❑ Community Gardens and Riparian Buffer Plantings (RESERVED)
- ❑ Contamination (metals, nitrates, etc.) (RESERVED)
- ❑ Air Quality from construction sites or tillage (RESERVED)
- ❑ Dredged Materials (RESERVED)
- ❑ Additional topics (RESERVED)



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# *Thanks*

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